

ABSTRACT OF THE DISCLOSURE

A new method for detecting aberrant phenotypes expressed by neoplastic cells present in bone marrow, peripheral blood, spinal fluid and lymph nodes, comprising the steps of: 1) separately staining one or more normal/reactive samples and one neoplastic sample with identical or partially overlapping, multiple combinations of monoclonal antibodies, 2) sequentially measuring the fluorescence emissions associated to large numbers of cells stained with the monoclonal antibodies from the normal/reactive samples and the neoplastic sample, 3) storing two independent list mode data files each containing information on the specific light scatter and fluorescence characteristics of each cell analyzed, 4) creating new data files by mixing list mode data from the data file containing information about the cells present in the neoplastic sample into the data file containing information on the cells present in the normal samples, 5) defining those areas occupied by events corresponding to normal cells and those areas corresponding to empty spaces in normal/reactive samples and that may be occupied by tumor cells in neoplastic samples, 6) sequentially identifying those events corresponding to neoplastic cells and those events corresponding to normal cells coexisting in a multidimensional space, and 7) establishing the most relevant phenotypic aberrations displayed by the neoplastic cells as compared to their normal counterpart.